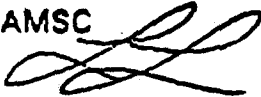

March 30, 1993 Comments

MSSAC-30

Comments of the Parties
regarding
Elements of a Consensus
(MSSAC-29 & 29A)

MEMORANDUM

TO: ABOVE 1 GHz NEGOTIATED RULEMAKING FACILITATOR
FROM: MIKE WARD, LON LEVIN, AMSC
RE: CONSENSUS PROPOSAL
DATE: MARCH 26, 1993



Generally speaking, the proposal is a creative, constructive idea. The following are AMSC's preliminary views of the critical matters that should be addressed before the plan can go forward:

- 1) A full understanding of the amount of spectrum available.
 - a) The 10.5 MHz may be unrealistic in light of the potential guardband needed to protect Glonass.
- 2) The group should submit to the FCC a proposal for additional domestic allocations including:
 - a) The Meteorological Aids Band (1675-1710 MHz).
 - b) The 2 GHz Band.
 - c) The Aeronautical Telemetry Bands (1492-1525 MHz).
(Also, at next competent WRC, clarify that U.S. may use.)
- 3) All applicants can amend applications, including, among other things, changes to modulation scheme.
- 4) CDMA operations
 - a) CDMA licenses should operate over common spectrum.
 - b) Minimum amount needed to accommodate all CDMA licensees should be understood.
- 5) Milestones for all licenses should be tied to full implementation of systems.

THE ARINC COMPANIES
ARINC INCORPORATED
AERONAUTICAL RADIO, INC. • ARINC RESEARCH CORPORATION
2551 Riva Road, Annapolis, Maryland 21401

FACSIMILE

Page 1 of 1

From <u>Larry Chesto</u> Ext. <u>4167</u>	ARINC FACSIMILE -- Group 1/2/3 Auto
Date <u>March 26, 1993</u> Time _____	Building 1 410-266-4049
	Confirm 410-266-4041
	Building 4 410-266-4010
	Confirm 410-266-4369
	Building 5 410-573-3068
	Confirm 410-266-4307
To <u>Dr. Ed Miller</u>	Building 6, 1st Floor 410-266-2047
<u>Tom Tycz</u>	Confirm 410-266-2034
<u>FCC</u>	Building 6, 1st Floor 410-266-4040
	Confirm 410-266-2034
FAX No. <u>202 634 6625</u>	Building 6, 3rd Floor 410-266-2329
	Confirm 410-266-4022

MESSAGE

RE: FCC MSS Above 1 GHz Negotiated Rulemaking Committee

The following comment is made on, "Elements of a Consensus."

It is important that technical criteria such as out-of-band emission levels be specified and apply to all applicants before they start "bending metal." This is critical to protect GPS operations which are now starting on a supplemental basis. Protection criteria will be similar for GLONASS but may be easier to meet if GLONASS moves in frequency.

Remarks _____

By _____ Date /Time Completed _____

Victor J. Toth
Law Office, Victor J. Toth, P.C.
2719 Soapstone Drive
Reston, VA 22091

TEL (703) 476-5515
FAX (703) 620-6086

DATE: 03/27/93

TIME: 08:15

TO: Dr. Ed Miller

COMPANY: NASA

FROM: Victor J. Toth

COMPANY: Law Office, Victor J. Toth, P.C.

This is the final version of CELSAT's commentds. Very sorry for the many iterations. Agorithm will be distributed at Monday meeting.

ORIGINAL

MEMORANDUM
(Revision #2A)

Date: March 26, 1993
From: Victor J. Toth (CELSAT)
To: Dr. Ed Miller, MASSAC Facilitator, and Interested Parties
Subject: CELSAT Comments to Strawman Elements for Consensus

Pursuant to your request at the MSSAC meeting on March 25, follows are additional comments and suggestions to the Strawman proposal for Elements for Consensus:

Missing Or Needed Elements:

CELSAT believes the following elements of a complete and workable hybrid band sharing plan are yet missing or are in need of change.

1. Mandatory CDMA "pooling": As proposed, the plan leaves it up to the individual CDMA licensees to decide whether they want to reserve any spectrum capacity attached to their license for their exclusive individual use, or contribute it to a CDMA pool. CELSAT believes that it is absolutely essential to effective CDMA sharing that the capacities attached to any CDMA license must inure to the benefit of the overall CDMA pool and not be held out for the exclusive use by a single licensee. In this connection, CELSAT has attempted to address below some of the concerns which have caused individual applicants to be leery of a "mandatory" pool, thereby making this preferred concept hopefully more palatable to all. In addition, it must be emphasized that all members of the CDMA pool would be bound by the default PFD and areal EIRP levels recommended by CELSAT and incorporated in the IWG1 DGA report.

2. Stand Alone, Independent Systems: The amount and relative proportion of access to the available spectrum is to be determined by the number of "operating licensees" in the band as well as by time (*infra*) and technology (CDMA or FDMA/TDMA). In order to minimize manipulation or artificial inflation of the "CDMA pool" through various interpretations of who or what constitutes a "licensee", CELSAT urges that a requirement be included which would permit the "pool" to expand only in response to entry by a *bone fide* operating licensee, meaning one which has no common structural ownership with any other licensee in the CDMA pool, and which is otherwise technically independent of any other CDMA system operating in the CDMA pool. (Such manipulation should not be attainable on the FDMA/TDMA side to the extent that only one such licensee shall be permitted in the FDMA subband for either the L- or the S-Bands (*infra*).)

3. Technology "Window": A time limit should be established by which either CDMA or FDMA/TDMA technology is closed out of the bands if, by the end of the period, at least one system using such technology is not yet operating in the band. After the "technology window" closes, full use of the band would be opened and thereafter ensured for use by the modulation technology which successfully had achieved operation within the period contemplated by the window. For this purpose CELSAT proposes that the window be "opened" upon the date of the initiation of service within the bands by the first operational system, and closed 5 years after that date. Once the window closed only systems of the same or a compatible technology would be licensed for shared (CDMA pool) or exclusive (FDMA) use of the full or usable portion of the bands.

Multiple FDMA/CDMA Systems

CELSAT originally contemplated that any allocation system adopted for the RDSS bands should be biased in favor of promoting CDMA sharing; yet, it should at least give IRIDIUM a shot at access. Accordingly, CELSAT originally proposed that no more than two subbands be anticipated for the L-Band: one subband to be expanded as a "pool" for all operating CDMA licensees (from the bottom-up), and a proportional subband (from the top-down) be made potentially available only to IRIDIUM.

Subsequently, a second applicant has expressed a possible interest in using TDMA technology. However, if a second FDMA/TDMA "pool" were created in the L-Band for multiple

FDMA/TDMA licensees any hope for efficient use of the L-Band by pooled CDMA licensees effectively would be lost.

Accordingly, CELSAT proposed at the meeting on March 25th that a similar FDMA/TDMA subband allocation be established on a mirrored basis in the S-Band, beginning at the lower end. (Use of the lower S-Band as a possible secondary TDMA uplink is more achievable for a TDMA operator using other than handheld terminal devices, larger antennas and more likely to service remote markets in that it would be in the best position to overcome, for example, the spurious effects of microwave oven interference believed to be present in that area of the S-band.) This would require an FCC waiver of the allocation table for secondary use of any portion of the S-Band in the uplink direction (a limited use not currently provided for under WARC but legally attainable). Because the scope of such a waiver would be limited to the U.S., any FDMA/TDMA licensee operating on this basis in the S-Band would be limited to domestic service. Further, in order to ensure adequate, matching uplink and downlink capacity for the CDMA pool, the FDMA/TDMA user in the S-Band would have to defer to the bandwidth needs of the primary CDMA users, probably to be dictated either by whether IRIDIUM enters the upper subband of the L-band, GLONASS, or both.

"Uncertainty":

One of the most frequently expressed objections to the proposal concerns the issue of the "uncertainty" which it supposedly invites as to such matters as the ultimate number of licensees operating in the pool, how much spectrum each will receive, etc.

To address one of these uncertainties -- namely, whether and when a potential licensee will enter the operational state -- CELSAT proposes that each licensee be required as a condition of its license to submit a quarterly public status report to the Commission, verified by an officer of the licensee, in which it discloses: (1) the status of each significant milestone; and (2)

any significant factors which present a possible impediment to meeting its planned operational date. Other licensees will then be able to rely on this information for their planning purposes. However, if the information submitted proves to be inaccurate and/or misleading, such conduct should be considered by the Commission in addressing any immediate or other license-related matter pending or later brought before it by the same licensee.

Dynamic Spectrum Allocation:

CELSAT does not see the role of the coordination committee as necessarily requiring any subjective activity on its part in supervising the dynamic re-apportionment of the spectrum between technologies and/or among operating members of the pool, or even involving foreign operators over the U.S. Moreover, CELSAT recognizes the concerns of the CDMA parties, in particular, over their ability dynamically to adjust their systems and terminal devices to possible variations in bandwidth available at different points in time.

To simplify the coordinating committee's task and to better define the available bandwidth in terms more useful to CDMA systems, CELSAT has devised an algorithm by which the allocations between technology types (in both the L- and the S-bands) can be more or less mechanically assigned as a function of (1) the number of operating systems; (2) the type of technology; and (3) in time.

The algorithm and an explanation by Mallinckrodt is attached, along with two tables showing its "rough cut" results for both a 10.5 MHz and a 16.5 MHz scenario in both the L- and S-bands. These tables have been further modified ("forced") manually to fine-tune the algorithm and thereby make even more efficient use of the available spectrum than achievable using the algorithm alone, while doing so in ways that are both fair and meaningful to the potential licensees.

Unit Bandwidth -- 1.25 MHz*

Total Useful Bandwidth -- 10.5 MHz (L-Band)

#Operating Licensees	# O.L.'s In "Pool"						
-	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN
1	5.00	--	--				
2	5.50	10.5					
3	3.00	7.50	10.5				
4	1.75	--	8.75	10.5			
5	1.75	--	--	8.75	10.5		
6	1.75	--	--	--	8.75	10.5	
7	1.75	--	--	--	--	8.75	10.5

* Selected unit bandwidth could be 1.0 MHz, etc. However, the minimum initial total bandwidth allocated to the initial licensee of 5.00 MHz both allows for use of up to 5 narrow CDMA channels of 1 MHz, 4 CDMA channels of 1.25 MHz, as well as at least one channel of 5 MHz.

(**Bold value** = allocation to IRIDIUM or other FDMA Licensee)

By way of explanation of the above table, if one licensee commences operation it would receive an initial allocation of 5.00 MHz. (This would permit operation of four 1.25 MHz CDMA channels, or 5.00 MHz of FDMA capacity (i.e., IRIDIUM).) Upon the second licensee entering the spectrum, if it was IRIDIUM it would receive an initial allocation of 5.50 MHz while the previous "first" CDMA operator would stay at only 5.0 MHz (there being no value in sharing in a "split" of the 0.50 MHz, since a mere 0.25 MHz would offer no incrementally useful additional CDMA capacity.) Moreover, the CDMA operator would move to the lower part of the usable L-band and IRIDIUM would take access to the upper end of the spectrum (as well as absorb any guardband requirements). The CDMA "pool" would be established as a "pool of one".

If and when a third licensee commenced operation, since it would have to be another CDMA licensee it would automatically become the second member of the CDMA pool which, in turn, automatically would expand (under the supervision of the

"coordinating committee") to 7.5 MHz. IRIDIUM would then drop back to 3.0 MHz (thereby accounting for the full use of the available 10.5 MHz). On the other hand, if all three operating licensees were CDMA (i.e., IRIDIUM was not yet operational), the CDMA pool would expand to fill the entire 10.5 MHz (the excess 0.50 MHz above 8 even 1.25 MHz channels becoming available for a guardband, etc.). Thereafter, with each new entrant the CDMA pool would either be fixed at 10.5 MHz or, at worst, have to drop back to no less than 8.75 MHz when and if IRIDIUM entered the market (i.e., IRIDIUM, as a late entrant, would risk getting initial access to a mere 1.75 MHz).

Adjustments with Time:

CELSAT originally contemplated that there should be some "fine tuning" as a function of "activity". It does not make sense, however, from the stand point of the CDMA applicants to "fine tune" in increments other than a usable minimum channel bandwidth, e.g., 1.25 MHz. Also, in view of the expressed strong preference that no licensee should be permitted access to the entire available band at the outset, it is likely to become necessary to "ratchet" an initial licensee upward as it acquires market share, operating experience, etc. Therefore, CELSAT is proposing that after some reasonable period of time (e.g., 18 months in operation) any licensee operating alone in the band should be permitted to "ratchet" up to the next level (i.e., the full 10.5 or 16.5 MHz) as though a second licensee had entered. However, if after the prescribed 18 month period another licensee did, in fact, enter the market the first licensee would be required, as a condition of its license and by Commission rule, to "ratchet" back down to the capacity reflected in the table corresponding to the new number of operators and operator technologies. (For example, if the second entrant were IRIDIUM, the CDMA licensee would drop down from 10.5 MHz (or 16.5 MHz) to 5.0 MHz (or 7.5 MHz); if the second were another CDMA licensee,

the two would share the full available "pool" subject to informal coordination and/or the PFD/EIRP default rules.)

Finally, as for any other fine tuning within the CDMA pool and among the CDMA pool members only, it would be accomplished informally among the operating licensees through the "licensee coordination" process described in the report of IWG1 DGA. Any failure to reach a modification of the allocations assured to each CDMA licensee under the rules would result in imposition of the so-called "default" PFD and EIRP limits.

As for "fine tuning" between the CDMA pool and IRIDIUM, this concept can either be abandoned in view of the changes recommended herein, or left to some "activity" formula to be incorporated in the Commission's rules and enforced/implemented by the joint government/licensee "coordinating" committee. (Again, however, any fine tuning would be in increments of 1.25 MHZ or some other integral bandwidth useful to the CDMA pool.)

Other Examples:

The following Tables represent "forced" fine tuning of the Mallinkcrodt algorithm for the situations described:

Unit Bandwidth -- 1.25 MHz

Total Useful Bandwidth -- 16.5 MHz (L-Band)**

#O.L.'s	# O.L.'s In "Pool"						
-	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN
1	7.50	--					
2	7.75	16.5					
3	5.25	11.25	16.5				
4	4.00	--	12.5	16.5			
5	2.75	--	--	13.75	16.5		
6	1.50	--	--	--	15.00	16.50	
7	1.50	--	--	--	--	15.00	16.50

(**Bold values** = IRIDIUM.)

** Assumes the L-Band is fully (i.e., 100%) usable except for RAS limitations.

In the table above wherein it is assumed that the full 16.5 MHz is available and usable for CDMA (subject only to the RAS limitations), the first operating licensee would receive access to 7.50 MHz (i.e., potentially 6 full 1.25 MHz CDMA channels or 7.5 MHz of FDMA capacity). If the first and second entrants are both CDMA, they would share a full 16.5 MHz pool; if one is CDMA and the other is IRIDIUM, IRIDIUM would get the upper 7.75 MHz, and the CDMA licensee would get the lower 8.75 MHz. (The CDMA operator would get the benefit of a slightly greater "slice" in recognition of the need to accommodate another full incrementally usable CDMA channel of 1.25 MHz.) Similarly, if a third licensee entered and the previous two were also CDMA, the CDMA pool would remain at the full 16.5 MHz (with the previous two operators dropping back in PFD/EIRP, etc. per the default sharing rules). If IRIDIUM was already among the first two operating licensees, the CDMA pool would be expanded only to 11.25 MHz (the next most usable increment of CDMA capacity) while IRIDIUM would drop back to 5.25 MHz. If IRIDIUM was just entering as the third licensee, it would get access to the upper 5.25 MHz while the two member CDMA pool would drop back to 11.25 MHz.

The table below reflects the possibility that the lower 6 MHz in the L-Band might be less than 100% usable for CDMA, but still at least partially usable (i.e., in remote markets, etc.). As explained in the note, IRIDIUM would not benefit proportionally under this scenario.

Unit Bandwidth -- 1.25 MHz

Total Useful Bandwidth -- 16.5 MHz (L-Band)***

#O.L.'s	# O.L.'s In "Pool"						
-	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN
1	7.50	--					
2	6.50	16.5					
3	4.00	11.25	16.5				
4	2.75	--	12.5	16.5			
5	1.50	--	--	13.75	16.5		
6	1.50	--	--	--	15.00	16.50	
7	1.50	--	--	--	--	15.00	16.50

*** Assumes L-Band is only 50% usable in the lower 1610-1616 MHz area due to GLONASS. Inasmuch as this area was not contemplated for use by and is otherwise not usable by IRIDIUM, the benefit of even the partial availability of this lower subband for use by CDMA licensees is weighted in their favor. (Again, bold values = IRIDIUM.)

As for the S-band, the allocations would be identical to that proposed for the L-Band under the assumption of a fully available 16.5 MHz. If, indeed, an operating licensee chose to operate on a TDMA/FDMA basis in only the S-Band and IRIDIUM failed to establish itself in the L-Band, the CDMA licensees would lose some of the full benefit of having the full L-Band to themselves. (No such problem would arise, however, if the lower 6 MHz in the L-Band were unavailable to CDMA due to GLONASS, in which case a domestic only TDMA operator in the lower S-Band would present an overall spectral efficiency gain.)

Finally, CELSAT believes that the MSSAC should not attempt to guarantee existing applicants a "1/6th share of the potential band capacity. The scheme proposed above should eliminate the need for any preset guaranteed maximum initial value of "N" for the benefit of the initial applicants. It should be left totally to the Commission (and not this Committee) to consider whether and when there will be any additional licenses over and above the initial six.

If there are any questions please contact Victor Toth at 703 476-5515 any time.

* * * * *

03/28/1993 22:28 FROM Jack Mallinckrodt

TO VIC TOTH

P.01

MEMORANDUM

TO: Vic Toth
 CC: Dave Otten
 FROM: Jack Mallinckrodt
 DATE: March 25, 1993
 SUBJECT: A BAND DIVISION PROP.

Post-It brand fax transmittal memo 7671		# of pages 1
To	Ed Miller	✓
Ca	more to follow	✓
Dept		
Phone		
Fax		

One of the concerns about all the band segmentation proposals put forth to date has been the disruption that would likely occur at readjustment time as a result of either new operational entities or to changing band share under dynamic sharing. There are two issues: 1) the possibility of reducing an operator's share of spectrum and capacity, (which may be an inescapable feature of any hybrid, i.e. not exclusively CDMA band sharing proposal) and capacity, and 2) the possibility of an operator having to change the subband structure of his design in order to take fullest advantage of the reallocated spectrum. For example, what does an operator do when he has been using, say 2 each 4.7 MHz subbands which just fill a 9.4 MHz pooled CDMA allocation, and suddenly the CDMA pool shrinks to 9.0 MHz. A change from 4.7 to 4.5 MHz subbands would probably require a very traumatic retrofit on all existing subscriber units. So he might be stuck with using only 4.7 MHz of the available 9.0.

This problem at least could be largely overcome by agreement at that all band division decisions would be made in terms of integral numbers of a reasonably small common bandwidth unit, e.g. 1.25 MHz. The attached tables show a possible realization of this approach. The top table corresponds to a 10.5 MHz available band, and the bottom to a 16.5 MHz band. The horizontal rows in each case correspond to the number of equal sharing operators at any time; the vertical columns to the number of poolers in the CDMA or FDMA pools. The basic algorithm is as follows:

$$B_i = B_u \cdot \text{INT}(B_a/B_u \cdot N_i/N)$$

where B_i is the bandwidth allotted to the i^{th} pool

B_u is the unit bandwidth, e.g. 1.25 MHz.

INT is the integer function

B_a is the total available bandwidth, e.g. 10.5 or 16.5 MHz

N is the total number of band sharers

N_i is the number of sharers in the i^{th} pool, $i=1...N$

N_i is N_i but not less than 2.

With this approach there will always be some remainder which will be pretty small in most cases and which can probably be put to best use by mutually agreeable negotiations as to best use, or perhaps guard bands.

The big advantage of some such approach as this is that such deeply ingrained design features as chip rate, the PN logic rate, and associated subband filters can be designed in once and for all and will not ever need to change.

03/23/1993 23:28

FROM Jack Mallinckrodt

TO VIC TOTM

P.02

SUBBAND QUANTIZATION

UNIT BAND 1.25
BANDWIDTH 10.8

#OPS	# POOLED				
0	1	2	3	4	5
1	5.00				
2	5.00	10.00			
3	2.50	6.25	10.00		
4	2.50	5.00	7.50	10.00	
5	1.25	3.75	6.25	7.50	10.00
6	1.25	2.50	5.00	6.25	8.75
7	1.25	2.50	3.75	5.00	7.50

UNIT BAND 1.25
BANDWIDTH 10.8

#OPS	# POOLED				
0	1	2	3	4	5
1	7.50				
2	7.50	16.25			
3	5.00	10.00	16.25		
4	3.75	7.50	11.25	16.25	
5	2.50	6.25	8.75	12.50	16.25
6	2.50	5.00	7.50	10.00	13.75
7	1.25	3.75	6.25	8.75	11.25

Nixon, Hargrave, Devans & Doyle

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March 26, 1993

Dr. Edward Miller
Facilitator
MSS-Negotiated Rule Making
2025 M Street, N.W. Room 6218(i)
Washington, D.C. 20554

Dear Dr. Miller:

In response to your request at the March 25, 1993 meeting of the Commission's MSS Advisory Committee, Constellation Communications, Inc. ("Constellation") is pleased to provide these comments on the proposal contained in MSSAC-29/29A for "Elements of a Consensus" in this negotiated rulemaking proceeding. Although Constellation can accept the guiding principles laid out in MSSAC-29/29A (the "Proposal"), Constellation also believes that there are a number of serious problems with the Proposal. Each must be corrected before this Proposal can be accepted as a working basis towards reaching a consensus. These problems and possible approaches to resolving them are discussed below.

1. General

Constellation has participated fully in the work of the committee and its working and drafting groups and has on numerous occasions stated its willingness to make modifications to its planned system in order to accommodate other systems. In fact, Constellation participated in the development of the joint technical proposals in MSSAC-23 and MSSAC-24 ("Joint Technical Proposal") which represent the views of a clear majority of the pending applicants. It is disappointing that the licensing of a TDMA/FDMA system to an applicant that refuses to consider any changes to its system and that cannot share frequencies with any other user on a co-frequency, co-coverage basis has become a foundation for any resolution of this proceeding. In Constellation's view, the outcome is a Proposal which ignores all the efforts of the majority of the applicants and is unworkable. Constellation believes that the Joint Technical Proposal provides

Nixon, Hargrave, Devans & Doyle
Dr. Edward Miller
March 26, 1993
Page 2

a fairer and more technically sound basis of satisfying the Commission's objectives in this proceeding.

2. Role of the Standing Committee

Major problems are presented by delegating the assignment and reapportioning of frequencies to a standing committee. As a legal matter, it is not clear that the Communications Act authorizes the Commission to delegate such authority to a committee of licensees because it puts the assignment and potential reapportionment of spectrum in the hands of competitors, and abrogates the normal procedural safeguards afforded to licensees. (See 47 U.S.C. §§ 308, 309, 316 and 319 with respect to a party's hearing rights before a party's application is denied, licensed or modified.)

Additionally, the reassignment of frequencies by the committee can result in an environment that encourages anti-competitive behavior. Such a situation will allow a licensee to utilize the committee to thwart the implementation and development of a MSS system by a potential competitor. As a practical matter, there is no reason to believe that a standing committee of licensees can reach mutual agreement on the assignment of frequencies when this negotiating rule making committee could not accomplish this task. (It should be noted that most of the participants in IWG-1 will also be participants in the standing committee.)

This environment provides every incentive for the operator of the first system launched to manipulate the Committee process in order to obstruct the introduction of competing systems. There is no need to be concerned about warehousing of spectrum when the first satellite is launched because it will have little traffic and thus requires little spectrum. Assigning the full band to the initial operator, at a time when its system is lightly loaded and the spectrum requirements are lowest, encourages inefficient frequency use in order to stake out a claim to the entire band. Under the Proposal the incentive is provided to the licensee that launches first to use every means possible to hold on to its initial assignment and delay the reassignment of spectrum to accommodate the next licensee to launch.

For example, Constellation believes that the proposed approach can provide AMSC with the ability to control use of this band to the detriment of other licensees in the band. This is because AMSC is likely to be the first MSS operator to use this band and therefore will be in a position to require all

Nixon, Hargrave, Devans & Doyle
Dr. Edward Miller
March 26, 1993
Page 3

subsequent MSS operators to conform their system designs to the AMSC system parameters. This will only provide AMSC (which currently is assigned approximately 33 MHz and is presently seeking an additional 33 MHz) with the ability to establish and maintain market dominance for the provision of MSS.

The problems identified above will only be exacerbated if the committee is to reassign frequencies based on committee determinations that a system is "fully operational" or that spectrum is to be reapportioned "to be commensurate with usage over time." Constellation does not see how a standing committee will be able to decide these issues in an cooperative, efficient or timely manner. Nor is it clear that the current negotiated rule making committee will be able to develop sufficiently fair and equitable definitions for these criteria in order to guide the standing committee.

3. Economic Implications

Constellation recognizes that there will be certain regulatory risks associated with any approach to licensing MSS/RDSS systems recommended by this committee. However, the Proposal unnecessarily raises the level of such risk to unacceptable levels.

If frequencies are not assigned by the standing committee until after launch, the incentive is created for competitors to use the standing committee's procedures to delay the assignment of frequencies, and thus commencement of revenue producing service by licensees who launch later in time. In Constellation's view, the regulatory uncertainties caused by these potential delays and the difficulties in getting an operator to vacate frequencies currently in use will be reflected directly in Constellation's and other applicants' ability to raise capital to fund their systems.

In order for any applicant to successfully complete the financing of its system, it must be able to control the technical, marketing and regulatory risks facing the implementation of its system. In particular, Constellation believes it must be able to demonstrate a definitive authorization and assignment of frequencies if it is to arrange financing for its system and promptly proceed with its implementation.

This requires that the responsibility for assigning spectrum be exercised by the Commission and not the standing committee and that the initial assignment be made when the

initial application grants are authorized by the Commission. Instead the role of any standing committee must be limited to technical coordination issues as envisioned by the Joint Technical Proposal.

4. International Coordination

This Proposal will also handicap the ability of the United States in the international coordination process. If no assignments are made until after launch, the Commission will be placed in a difficult position of having to coordinate the entire 1610-1626.5 MHz band for CDMA systems and the entire 1613.8-1626.5 MHz band for FDMA/TDMA systems. Other administrations will be quick to point out that such an approach is internally inconsistent and does not reflect a well-defined national spectrum requirement. In such a case, other administrations are likely to refuse to negotiate meaningfully, and resulting delays in reaching coordination agreements will place the United States in an unfavorable position with respect to coordinating and notifying frequency assignments to MSS/RDSS systems. Moreover, the licensees will be placed in the difficult position of having to provide technical support for the coordination of undefined spectrum assignments.

On the other hand, early assignment of spectrum will provide the certainty of a well-defined initial United States MSS/RDSS spectrum requirement as a baseline on which all licensees can devote full efforts in supporting Commission activities in international coordination. This does not preclude the development of optional frequency assignment plans which can be put on the table for coordination in the event applicants should not implement their systems. However, such optional proposals can not undercut the coordination of the basic spectrum assignments to which a licensee is entitled.

5. Use of the 1610 to 1616 MHz band

Finally, Constellation believes it would be a serious mistake for the United States to indicate that it presently will not assign frequency in the 1610 to 1616 MHz band. This will merely send a signal to all those parties with a vested interest in this band that the U.S. has significant reservations about its potential use. It provides those parties with increased resolve to protect their interests and likely will result in this band never being made available for MSS. The U.S. must now indicate that it will make license assignments in the band subject to the successful conclusion of coordination agreements.

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Conclusion

Constellation appreciates your efforts and the efforts of the Commission staff and informal working group coordinators in developing this Proposal. However, as noted above, the interests of all of the applicants, including Constellation, must be taken into account if a consensus is to be reached. The serious problems described above must first be solved if Constellation is to accept such an approach as a basis for proceeding to complete the work of this committee.

Sincerely,

Robert A. Mazer
Robert A. Mazer

Counsel to Constellation
Communications, Inc.

cc: Tom Tcyz
Cecily Holiday, Esq.
Fern Jamulnek, Esq.
Kristi Kendall, Esq.
John Gilsenan



March 26, 1993

Dr. Edward Miller
Facilitator for Big LEO Advisory Committee

Dear Dr. Miller,

At the Advisory Committee's meeting on March 26, you asked members to provide you with substantive comments on the paper entitled "Elements of Consensus". My comments follow.

Most importantly, your initiative in developing the "Elements of Consensus" is most welcome. It has served to define issues and to direct attention to the practical necessity of reaching consensus on how to share the available spectrum. If work continues on the proposed consensus, I suggest it do so in parallel with the ongoing work in IWG-1 and its various working groups. My comments are intended to facilitate that process:

-The approach described in paragraph 2 is satisfactory as far as it goes. It is not enough, however, to specify the roles of CDMA systems and of Motorola. AMSC's role also has to be defined with greater precision because it will be critical to the judgment of CDMA players as to whether the overall consensus is equitable. AMSC already has a monopoly in a different part of the spectrum. It has satellites under construction and ground equipment in place pursuant to existing licenses. By adapting those satellites and related equipment to take advantage of the system described in the consensus, AMSC could lay claim to the ten MHz years ahead of any competition. These or comparable advantages are enjoyed by no other applicant. Equity would require that AMSC be constrained so that it has no advantage based upon existing construction licenses and spectrum allocations. Moreover, AMSC should commit itself to CDMA. But an AMSC as a non-CDMA and unconstrained player would fundamentally change the arithmetic of the consensus and jeopardize its acceptability.

-CDMA systems should be required to pool spectrum. This would make the consensus significantly more attractive to potential financiers.

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-The Glonass issue has to be dealt with quickly and firmly. I have heard, for example, that the Russians have just registered with the IFRB a Big LEO CDMA system to operate across the entire spectrum without an exception for Glonass. The Committee and the FCC should not be more solicitous of Glonass than the Russians. The proposed consensus would be more inviting spread across 16 Mhz; much less so at 10; not at all at 8.

-Greater clarification is required on the role and authority of the standing committee. It may be true that it is a mechanism which is familiar in FCC practice, but the Committee is also given an international role (paragraph 6) which other countries (which license the domestic sale of specific Big LEO services) may not understand and may even interpret as a violation of their sovereignty and rights under the ITU constitution.

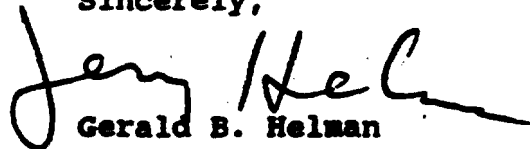
-Some definition is required for the term, "fully operational" in order to avoid future controversy.

-Definition is also required for "usage" in paragraph 8c as a decision-making parameter. The methodology for employing the concept should accommodate the trend in usage growth in data as well as voice.

-There should be greater specificity under paragraph 8b on the terms under which additional applicants will be permitted, and the timing of such applications. At minimum, it should depend upon the successful allocation of additional spectrum by future world radio conferences.

I would, of course, be happy to discuss these views with you at your convenience.

Sincerely,


Gerald B. Helman

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March 26, 1993

Dr. Edward F. Miller
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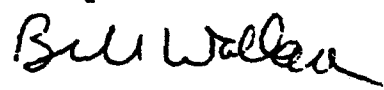
RE: Elements of Consensus

Dear Dr. Miller:

Enclosed per your request are comments on the "elements of consensus" plan. (These comments amplify the concerns previously expressed to you.) In light of these concerns, it is my understanding that Loral Qualcomm Satellite Services believes that the plan needs clarification and further development.

We remain available to work with you.

Very truly yours,



William D. Wallace
(Member of Florida Bar only)

Enclosure

cc: John Gilsenan
Tom Tycz

LQSS Comments on "Elements of Consensus"

General

Like other proposals in this proceeding, there are certain criteria, such as reasonableness and equity, against which this proposal must be compared.

Even though a proposal may not satisfy one or two among the six or seven interested parties, there are also certain public interest concerns which should be taken into account, e.g., promoting a competitive market for MSS service, potential capacity, facilitating international coordination.

Any proposal must take into account that the MSS bands were allocated for satellite systems which can serve hand-held user terminals.

Because there is limited bandwidth for assignment to licensed systems, a premium should be placed on spectrum efficiency.

Many alternatives to full band sharing have been proposed solely because one applicant has designed a very expensive system which is not conducive to multiple entry, competition or international coordination.

Full band interference sharing is the preferred technical plan to facilitate multiple entry, substantial potential capacity, competition, and international coordination.

Equity

The "elements of consensus" plan is not necessarily more equitable than other proposals which have been advanced, e.g., band segmentation by $1/n$ (where n = number of applicants or licensees), full band/polarization segmentation sharing. Each allows all applicants to be accommodated.

The equity sought in the "elements of consensus" plan should extend to access to feeder links, access to all allocated spectrum (including use of secondary downlink in L-band), and use of access technology (CDMA and TDMA).

Market Driven

If licenses are issued without assignment of frequency, each applicant would encounter difficulty in obtaining financial investments, which all systems need.

Because the availability of spectrum resources may change over the lifetime of the system, the plan does not provide